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PUBLIC LANDS

BUREAU OF LAND MANAGEMENT



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OUR PUBLIC LANDS . . .



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500 million acres of land that belong to us and to our neighbors and to all the people of the United States . . . public lands that are rich in natural resources . . . timber, rangeland, water, minerals, and land for every use . . . "active acres" that must be carefully and wisely managed for the welfare of the Nation . . .

As a forum for the exchange of ideas and information on the development, utilization, and conservation of the resources on public lands, this periodical contains no copyrighted material. If pictures or material are reprinted, a credit line should be given OUR PUBLIC LANDS and the Bureau of Land Management.

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COVER

Every fall thousands of sheep trek from high summer grazing lands in Utah to the winter ranges in one or more grazing districts of the State. The Range Management Division of the Bureau of Land Management designates suitable trails to handle this annual stock traffic.



OASES IN THE DESERT

by H. R. HOCHMUTH, *Chief, Division of Land and Minerals, Region I*

To promote the reclamation by irrigation of the arid and semiarid public lands of the Western States through individual effort and private capital—in this succinct manner the purpose of desert land entries is stated in the statutes. Public lands subject to entry under the desert-land law must be susceptible to irrigation by practical means. In addition, these lands must be such that they will not produce a reasonably remunerative agricultural crop without irrigation.

Stated differently, desert-land entries must have a practical irrigation system with the assumption that the water is available, and that the land will not, economically speaking, produce agricultural crops without irrigation. There are, of course, secondary considerations of proper soils, topography, drainage, and concentration of salts.

CLASSIFICATION REQUIREMENTS

Desert-land entries are applicable only to the arid regions of the United States. The law provides for entries in North and South Dakota and the eleven Western States. The statutes do not define in detail what lands are to be classified as desert in character. However, in addition to the classification requirements as given above, the regulations provide that public lands which can produce agricultural crops by successful dry-farming methods are not subject to desert-land entries. Also the lands must be nontimbered.

Proper classification of lands for desert entry requires consideration of climatic, ecological, and soils factors. In general, arid lands will not be classified as suitable for desert-land entry if they are capable of raising crops by dry-farming methods. However, the line of demarcation between dry farming and desert land is not precise. The vegetal cover is a good indicator of the classification possibilities. The field examiner using judgment and experience can determine the effective precipitation and the soil capability from the indicator plants and surface soil indications. Generally, less than 12 to 14 inches of precipitation indicates that crops cannot successfully be grown except under irrigation. At the other

extreme, lands supporting timber species would be classified as unsuitable for desert-land entry.

FIELD EXAMINATION

Field examination of public lands for purposes of classification as to suitability for agriculture or other uses requires broad knowledge of land capability and potential. It is an excellent training ground for Bureau employees. A first-rate field examiner should have a working knowledge of meteorology, hydrology, ecology, agronomy, forestry, soils, and economics. This would seem like a formidable list of qualifications. However, the routine act of classifying lands under desert land application may require knowledge pertaining to all of these specialized fields.

Aerial photos and photomaps are assuming greater importance as time and cost-cutting aids in land classification procedures. Aerial photos are particularly useful in area classifications, and such classifications are well adapted to desert land areas. In large part, desert-land entries are concentrated in valleys underlain by ground-water reservoirs. Prior to field examination, considerable information as to surface indications and land capability can be gleaned from aerial photos. However, information obtained from aerial photos does not offer conclusive answers to the basic problem—the extent and the potential of the ground-water supply.

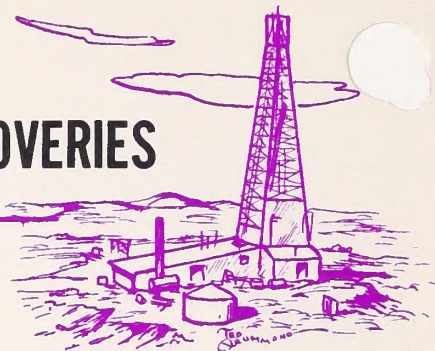
WATER A BASIC PROBLEM

The desert-land law conceived of reclamation principally by use of surface waters. Water from ground water basins, although recognized as to its potentialities for reclamation under the desert-land law, is a relatively recent development on a large scale. At the present time, most of the surface waters in the Western States, feasible of development by individuals, has been appropriated. Ground water is practically the last avenue left open for irrigation development of individual tracts of land.

(Continued on page 12)

THE ROLE OF LAND OFFICES IN OIL DISCOVERIES

by JOSEPH C. CONRACE, *Regional Chief, Division of Minerals, Region III*



The April, 1952, issue of *OUR PUBLIC LANDS* carried the initial article on "The Role of Land Offices in Oil Discoveries," with especial reference to the famous Williston Basin. The article told how the filing of new oil and gas cases soared immediately after news of the discovery "leaked" out and how the sudden avalanche of oil and gas lease filings at the land office at Billings all but "swamped" the office.

This second article will present in more detail a semi-technical account of land office work with special reference to minerals. The minerals work of the Bureau of Land Management not only aids in the development of natural resources but it brings in great revenues to Federal and State Treasuries.

Most public lands in the "critical" area of the basin have been filed upon, but a group of individuals who make a practice of examining land records for the public generally are in constant attendance at the counter of the land office at Billings, busily examining tract books, plats and other public records, endeavoring to locate areas which may have been over-looked in the mad rush of filings or which have since become potentially valuable because of more recent discovery activities. Oil and gas lease filings have been made and are being made for the beds of rivers, for accreted lands, and even for the area within the International Boundary.

The International Boundary, of course, is inviolate in this respect and all offers filed for this area must be rejected. The bed of a river, if the river is navigable, belongs to the state in which the river is located; in such event, leasing rights, etc., must be obtained from the State involved. On the other hand, if the river is nonnavigable, the general rule is that the owner of the abutting upland has riparian rights to the center of the stream. It should be noted that the question as to whether the river is navigable must be determined by the courts. At any rate, an oil and gas lease offer for a part of a river bed must describe by metes and bounds the area desired to be leased, in order that it may be definitely identified on the

plat of survey and the correct status of the land may be obtained.

The same rule as to definiteness of description applies to offers covering accreted lands. In both instances, i. e., beds of rivers and accreted lands, it is generally necessary to have the area examined in the field to determine the exact location and condition of the area involved. For that reason the metes and bounds description must be accurate; in the case of accreted lands, a surveyor's diagram of the tract involved should be furnished. As a matter of fact, the boundaries of accreted land can be defined only by an actual cadastral survey of the land by following well-established rules for the division of accretion.

This situation, of course, greatly increases the average amount of time and effort ordinarily required to process an oil and gas lease offer to conclusion. Due to the complicated matters which are encountered, a steady stream of novel situations arise for study and final determination.

Too, it has been found in actual practice that the more leases the land office issues, the greater the likelihood of additional work being created by reason of assignments of leases, operating agreements, drilling bonds, etc. In other words, the mere issuance of a lease does not close the matter so far as land office activity is concerned. The issuance of the lease merely paves the way for the real reason why the lease issued—to be able to conduct prospecting operations in an endeavor to find oil or gas. If the lessee is not to be the actual prospector or operator, he either assigns his lease to someone who is interested or he enters into an operating agreement with some well-known oil operator for the purpose of having operations conducted upon the leased area. Before the assignment of a lease may be effected, the instrument of assignment must be filed in the land office and approved formally; thereafter, the assignee is recognized as the lease owner, or lessee of record as he is sometimes called.

If the lease owner enters into an operating agreement with an operator, the operating agreement must also be approved in the land office before it

operator can be recognized or operations conducted under the provisions of the lease and the operating agreement. One of the main requirements for approval of an assignment or an operating agreement is that the assignee or the operator, whichever is involved, must qualify as to citizenship and be within acreage limitations as to other oil and gas holdings in the same state where the leased area is located.

The final requirement in order to commence drilling operations is to furnish a satisfactory \$5,000 general lease bond executed by the lessee (or by the operator under an approved operating agreement) and by a corporate surety. This bond is filed with the manager of the land office, who examines it and, if it is found satisfactory, formally accepts it by letter addressed to the oil and gas supervisor of the U. S. Geological Survey. The oil and gas supervisor is thus informed that the lessee has qualified to commence drilling operations and to continue such operations thereafter under applicable regulations of the Geological Survey.

It is in this matter of approving assignments,

operating agreements, accepting drilling bonds, etc., that the land office is of real help in furthering the discovery of oil or gas on the public domain. Delay in action by the land office might retard the success of a prospecting or operating venture. The land office at Billings points with pride to the fact that assignments, operating agreements and drilling bonds are acted upon promptly so that there may be no cause for delay in operations being conducted.

Furthermore, even though there is an existing backlog of 4813 unclosed cases, this does not necessarily mean that an applicant for an oil and gas lease who has only just recently filed his offer must wait until his offer is reached in chronological order before it can be acted upon. Let us assume that he has a rig ready to commence drilling and that he is "rarin'" to go. In such case, the land office comes to his immediate help by taking the offer out of its regular turn and acting upon it at once; all that is necessary to effect this expeditious procedure is to write a letter to the land office manager and explain to him just why a particular

(Continued on page 14)

OIL. Storage tanks like these will mushroom in the West as leases flow through the Bureau of Land Management's land offices.



PUBLIC LANDS

From The President's Message to Congress

The Bureau of Land Management is proud to present extracts from the President's Message to the Congress on "A Program Designed to Conserve and Improve the Nation's Natural Resources." This message which was published in the Congressional Record of July 31, contains the following paragraphs which are of special interest to BLM.

... "In my state of the Union message, I called attention to the vast importance to this Nation now and in the future of our soil and water, our forests and minerals, and our wildlife resources. I indicated the need for a strong Federal program in the field of resource development. At the same time I pointed to the necessity for a cooperative partnership of the States and local communities, private citizens, and the Federal Government in carrying out a sound natural resources program . . .

"As we move forward in a cooperative and coordinated soil and water conservation program, we must not overlook the essential role played by the Federal Government in the management of public lands. Approximately 50 percent of the land area of the Western States is owned and managed by a number of Federal agencies. The National Park Service administers parks and monuments having national significance. The Forest Service administers the national forests, with their valuable timberlands and grazing resources, and in cooperation with State and local interests protects critical watersheds. The Bureau of Reclamation and the Corps of Engineers manage lands in connection with water-resource projects built by these agencies. Fish and wildlife are protected by the Fish and Wildlife Service. The Bureau of Indian Affairs administers Indian lands, and the great public domain remaining is administered by the Bureau of Land Management.

"The Federal Government has a responsibility to manage wisely those public lands and forests under its jurisdiction necessary in the interest of the public as a whole. Important values exist in these lands for forest and mineral products, grazing, fish, and wildlife, and for recreation. Moreover, it is imperative to the welfare of thousands of communities and millions of acres of irrigated land that such lands be managed to protect the water supply and water quality which

come from them. In the utilization of these lands, the people are entitled to expect that their timber, minerals, streams and water supply, wildlife and recreational values should be safeguarded, improved, and made available not only for this but for future generations. At the same time, public lands should be made available for their best use under conditions that promote stability for communities and individuals and encourage full development of the resources involved.

"While, as I have indicated, our major problem is to carry forward a tradition of improvement and conservation of our natural resources, the best means of achieving this objective depends on keeping up with changing conditions. For example, the problems of water-resource development in the West are undergoing considerable change. The pattern of western growth has broadened substantially in recent years. Industrial expansion has been extensive and varied. Increased activities in mineral and fuel processing have occurred. Urban expansion has been well above the national average in many communities. These developments have brought about strong competition for existing water supplies and have stimulated the need for a broader approach in planning new water resource developments. As a consequence, the Federal role in the cooperative development of these resources should now be reexamined in the interest of achieving a better balanced program for western growth.

"Conserving and improving our land and water resources is high priority business for all of us. It is the purpose of this administration to present to the next session of the Congress suitable recommendations for achieving the objectives set forth in this message. I am confident that the studies of governmental organization and functions authorized by this Congress can also make an important contribution to the solution of these problems. As the Congress moves ahead on a constructive legislative program in the resource field, it will have my full support and cooperation. We must build a balanced program for the use and development of all our natural resources. Such a program is indispensable to maintaining and improving our standard of living as we make the future secure for a growing America."

DEMAND FOR LAND: 1940-1953

by IRVING SENZEL, *Assistant to Chief, Division of Land*

For Lands and Minerals personnel, the post-war years have been a constant struggle against a mass of case work. Despite new departures and multi-lateral streamlining efforts, which greatly increased per capita production, cases on hand continue to pile up.

The immediate reason for this Alice-in-Wonderland situation, where one must race top speed to remain in the same spot, is simple to state. New applications for public lands have flooded into the land offices at an accelerating pace. From 1940-1945 new applications averaged 8,000 per year. In 1953, they totaled over 40,000 cases—a five-fold increase over the wartime average. The first month of this fiscal year (1954) totaled 3,896 cases. This is a thirty percent increase over the same period for last year. At this writing it is too early to predict the year's total.

The underlying cause for this demand for land is the unprecedented economic activity of the country which has pushed the Nation's gross national product over the 350 billion dollar mark. Intense economic endeavor has brought higher prices, raising the prospects of economic feasibility in many former marginal and submarginal areas. Flow of income, tax laws, and other factors have increased the availability of risk capital for certain types of economic ventures and extra purchasing power for financing of leisure activities. Addi-

tions to the industrial structure of the country called for additional sites to house the new facilities and to supply necessary raw materials.

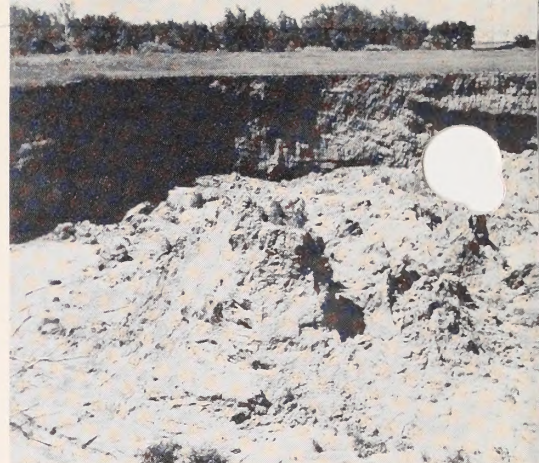
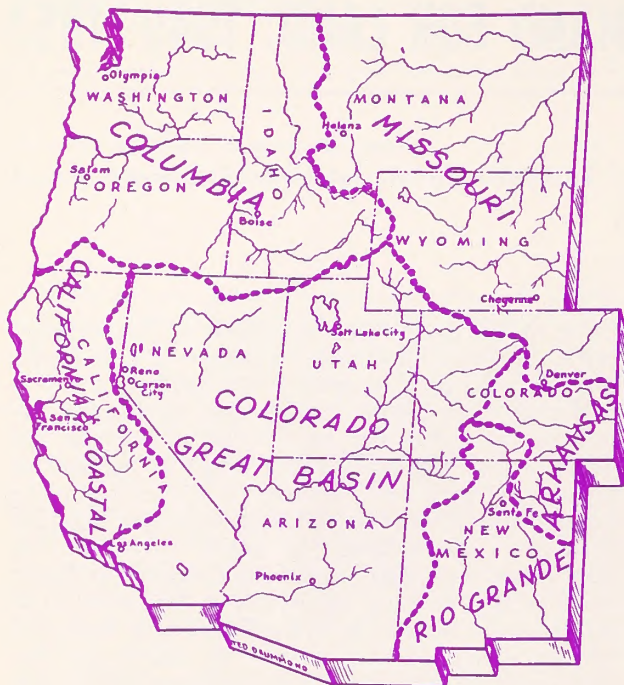
Within this larger framework, particular developments have had an intense impact on the work of the Bureau. More effective means for tapping underground sources of water, including improved drills and more efficient pumps, together with the improvements in heavy earth moving equipment, have encouraged the demand for desert lands to the end that applications for desert-land entries and homesteads in the West have increased phenomenally. During the war years, the Bureau received annually about 50 desert-land applications. In 1953 alone, it received 3,280 applications.

Veterans' legislation also has had a considerable influence upon the Bureau work load, both by generating a widespread interest in the public lands and by reducing the requirements leading to acquisition of title to homestead lands. Applications for homesteads increased from the wartime average of 450 to 1,143 in 1953. Veterans' interest has been particularly apparent in the small-tract program, where their sole advantage is a preference right of application. The greatly increased demand for small tracts (from less than 800 per year from 1940 through 1945 to more than

(Continued on page 13)

DESERT. Raw land like this on the public domain is in great demand by veterans and others.





EROSION PROBLEM. Uncontrolled runoff from the watershed is eroding a tract of valuable meadow land.

Look to the

*Western River Basins Hold
Key to Range Problem
and Land Cure*

CONTINUED CURE. Range waterspreading systems hold excess runoff on the watershed, reducing the volume reaching downstream eroding channels.





Washed above this gully is rapidly destroy-



FIRST AID. First step in controlling gully erosion is construction of detention dams like the above to slow rushing floodwaters.

Watersheds

During the past few years there has been a gradual shift in planning soil and moisture conservation activities from a selected area to a watershed basis. Pilot projects have been installed on individual watersheds in several western range States. They are providing valuable information and experience for designing conservation programs to fit the physical characteristics of the land. Pilot areas include Willow Creek in Montana, Logan Gulch in Wyoming, Crescent Wash in Utah and

Cornfield Wash in New Mexico. High intensity storms on Willow Creek and Cornfield Wash have tested and demonstrated the adequacy of designing erosion control structures to calculated rates and volumes of storm runoff.

Beginning with Fiscal Year 1954, the entire soil and moisture program in BLM will be realigned on a watershed basis. The delineation of the Nation's watersheds compiled by the Federal Inter-Agency River Basin Subcommittee on Hydrology has been followed in establishing watershed boundaries. The map shows the Hydrologic Regions in the Western States as determined by this Subcommittee.

Each Hydrologic Region has been divided into Sub-Basins such as, for example, the Upper, Middle, and Lower Colorado. Existing approved S&M areas within the Sub-Basin will be consolidated and the Sub-Basin will become the new S&M

(Continued on page 14)

HEALED LAND. Contour furrows hold rain where it falls on the watershed and provide enough moisture to support a stand of soil-protecting grass.





active acres

ACTIVITY MAP

Approximately 8,000,000 acres of BLM lands in Colorado have many possible uses and contain an unusual variety of natural resources, both on the surface and underground. The rugged central mountain ranges contain many valuable mineral deposits. These mountains also form the watersheds. The rolling plains of eastern Colorado are natural grasslands. The western slope of the mountains and the high plateau region that flanks them are important watersheds producing timber and forage crops. Here sedimentary rocks and shale formations are the source of underground deposits of oil, gas, oil shale, coal and minerals from which fissionable materials are derived. Most of the rangelands are in grazing districts. Many kinds of big game animals and spectacular scenery make this an increasingly popular recreational region.

Some fiscal year 1953 statistics indicate the extent of BLM lands and activities in Colorado. Three cadastral survey parties, two range survey parties, and one land resource classification party are engaged in location, inventory and analysis of land areas and resources. 7,382,765 acres of land are in grazing districts. These provide grazing under permits for 196,879 cattle and horses and 632,595 sheep and goats owned by 1932 livestock operators. On rangelands outside of grazing districts, 540,700 acres are leased by 908 operators. There were 1577 mineral lease filings for oil, gas, potash and coal, and 26 mineral patents were issued for 21,500 acres of oil shale, placer and lode claims. Agricultural land filings were for 25 homesteads and 16 desert land entries. Timber sales and free use accounted for the removal of 2689 M. B. F. of forest products. 39 fires which burned 3,053 acres caused damage estimated at \$77,763. Soil and moisture conservation activities were conducted on 14 major project areas. 33 applications for right-of-way and 48 small tract leases required individual examination. Wildlife

population is estimated at a total of 216,942 big game animals, principally deer, antelope, elk and mountain sheep.

IDAHO WELLS

A factual report describing 165 wells in eastern Jerome County, Idaho, containing an estimate of ground-water pumpage in 1952, and accompanied by a well-location map, has been released by the Geological Survey, Department of the Interior.

The Survey currently is engaged in a comprehensive study and appraisal of the ground-water resources of the western part of the Snake River Plain in southern Idaho. Part of the work in Jerome County has been done in cooperation with the State of Idaho Department of Reclamation.

Hydrologic investigations show that ground water in the western Snake River Plain occurs chiefly in permeable layers in the Snake River Basalt, and that the water is largely unconfined (free), rather than confined (artesian). The principal irrigation wells in eastern Jerome County tap unconfined water in basalt, where the depth to the water table ranges from about 285 to 375 feet. Pump discharges range from about 540 to 3,000 gallons a minute. The estimated total pumpage of ground water for irrigation in the area of study increased from a negligible amount in 1949 to about 21,570 acre-feet in 1952. This pumpage, during an irrigation season of about 120 days, represents an average withdrawal rate of nearly 180 acre-feet a day, or a steady summer pumpage of about 91 cubic feet per second (about 41,000 gallons a minute).

During the period 1949 to 1952 there was no appreciable net change even in local water levels in observation wells. The perennial yield of the aquifer is many times the amount now utilized, but extensive new pumping projects that are planned or already under construction will substantially increase the draft on ground water in the future.

PEOPLE

William Gano Guernsey, former resident of Montana, has been appointed regional administrator (Region I) Bureau of Land Management at Portland, Oregon. He succeeds Roscoe E. Bell, who has been reassigned to a technical position in Alaska.

Mr. Guernsey who has been in the Government service for more than 25 years, has been assistant regional forester of the intermountain region of the Forest Service in southern Idaho, Utah and Nevada. His headquarters have been in Ogden, Utah. The BLM region he will head covers Idaho, Oregon and Washington.

The new administrator has had a wide experience in management of forest lands, principally in Montana and Idaho.

He is a veteran of both world wars, having served with the Navy in 1919-1921 and 1941-1945. He holds the rank of commander in the Naval Reserve. He was graduated from the University of Idaho with a B. S. degree in 1929, majoring in forestry and grazing.

Westel B. Wallace of Boise, Idaho, has been named Bureau of Land Management regional administrator in Billings, Mont., for the Bureau's Region 3, covering the States of Montana, Wyoming, Nebraska, Kansas, and North and South Dakota. He is a native of Colorado and most of his business and Government career located him in the Rocky Mountain area and on the West Coast.

Mr. Wallace replaces Albin D. Molohon, former regional administrator at Billings, who is now in Tel Aviv, Israel, on a technical assistance assignment to advise officials of the Israeli Government on resource development.

Mr. Wallace has worked and traveled throughout the West and has had much practical experience in land use economics of every nature, ranging from desert to intensively farmed and irrigated lands, and lands valuable for minerals, forest, and rangeland.

Since 1944 he was with the Bureau of Reclamation as regional land officer, responsible for land valuation, acquisition, and withdrawal. From 1938 to 1942 he was engaged in the analysis and valuation of lands and improvements for various War Department projects. In 1942 he went to Portland, Oregon, to organize and administer the appraisal work of the Pacific Northwest Division of Army Engineers. For a time he was stationed in the Washington office of the Army Engineers.

Mr. Wallace also had extensive banking, credit, and business experience in private employment—with particular experience in matters relating to farming and livestock operation.

ALASKA AND OIL

Discovery of oil seepages by Geological Survey field experts in the uninhabited and little-known Malaspina Glacier area of southern Alaska has been announced.

During July geologists Darwin L. Rossman and George Plafker of the Survey found several active seepages of high-gravity oil on two streams that drain into the large unnamed ice-dammed lake on the south flank of the Samovar Hills. These hills, located about 30 miles from the Gulf of Alaska coast, midway between Icy Bay and Yakutat Bay, are surrounded by snow and ice fields of the Malaspina, Seward, and Agassiz Glaciers.

The seepages were found in the course of reconnaissance geologic mapping of the Icy Bay-Yakutat Bay foothills belt of the St. Elias Mountains, undertaken as part of the Geological Survey's program to investigate the petroleum possibilities of the Gulf of Alaska Tertiary province. This program begun in 1944, is under the supervision of Don J. Miller. The Geological Survey party used a plane equipped with wheels and retractable skis to reach the ice-bound Samovar Hills and adjacent areas.

The Samovar Hills lie in the north-central part of a 300-mile-long-belt of Tertiary sedimentary rocks that borders the Gulf of Alaska on the northeast. Seepages of high-gravity paraffin-base oil have long been known in the northwestern or Katalla-Yakataga portion of this belt, where Phillips Petroleum Company and Kerr-McGee Company jointly are carrying out oil exploration in a large block of leases. Applications for oil and gas leases in the adjacent Malaspina area to the east have recently been filed with the Federal Government. The newly discovered oil seepages in the Samovar Hills are 45 miles northeast of the nearest previously known oil seepages of the Katalla-Yakataga area.

The Samovar oil seepages are located in rocks of Tertiary age, in a shattered zone near the contact between a marine siltstone unit and an overlying, yellow-weathering, predominantly sandy, coal-bearing unit. In the vicinity of the seepages the Tertiary rocks are cut by major faults and are in angular unconformable contact with older, more intensely deformed rocks of early Tertiary or pretertiary age. The fresh oil is green in color and appears to be similar in composition to the oil found in the seepages of the Katalla-Yakataga area.

A Bureau of Mines photograph illustrates "The Role of Land Offices in Oil Discoveries."

Correction: The artist's symbol on the Idaho activity map, July issue, should have read phosphate, instead of potash.

Ground water reservoirs result from the storage holding capacity and physical characteristics of the sub-surface strata. Much of the sandstone and limestone formations in the Western States are excellent aquifers. Unfortunately the extent and volume of water stored in the ground water reservoir is not the prime factor upon which pump or artesian irrigation development can be established in perpetuity.

Ground water reservoirs are natural methods of storing percolating surface waters, and in the long run can be put to economic use so long as the recharge equals the withdrawal. The amount of recharge to the reservoir results from the quantity of precipitation to and evaporation and transportation from the area and the percolating ability of the collecting basin. Essentially a ground water reservoir concentrates water from a larger area, and in the arid west these areas have insufficient usable precipitation to grow crops.

The problem involved in classifying lands for desert land entry is not primarily one of determining the extent and capacity of the ground reservoir, but of determining its capacity for replenishment. This requires detailed study and planning. In many areas open for desert land entry, the Bureau does not have available the hydrologic facts. So little is known about ground water in the arid West that many questions are presently unanswered. What is the rate of replenishment? How many centuries has it taken to establish these reservoirs? What physical changes occur in the aquifers when depletion occurs? What is the relationship of depletion to mineralization of the waters? These are basic questions that the Bureau must consider with the States in providing long range policy for disposal of lands under the desert land laws.

STAGES OF DEVELOPMENT

Areas subject to desert land entry may be classified as to the land tenure relationships and the stages of water development. Some areas have public domain and private or state lands intermingled. Where the water supply is limited, as is usually the case, is it a better policy to await full development on private lands before proceeding with disposal of public lands? From the standpoint of proper land classification, the water should be placed on lands of greatest productivity regardless of ownership. However, this procedure should be tempered by the realization that such course may lead to immediate overdevelopment and possible future investment loss. Areas containing only public domain do not present the same land tenure problem. Land classification can guide the better lands into production, given adequate data on water.

In classifying areas for desert land entry, at least four discernible differing situations are encountered. These situations are based entirely on water supply because water, not land, is the limiting factor in most desert land reclamation development. These stages of development are:

1. Areas with a well established irrigation agriculture, and where the ground water basin is fully explored. In addition pumping lifts have increased and overdraft of the reservoir is evident.

2. Areas of established irrigation agriculture with probable complete use of recharged water. No noticeable drawdown of the ground reservoir is evident.

3. Areas where ground water has recently been discovered and some lands have been or are being placed in cultivation. Usually no information is available regarding the extent of the reservoir or the amount of annual recharge to the reservoir.

4. Areas of suspected or probable ground water, no irrigation agriculture, and with considerable demand for water exploration.

The various States control the machinery for water appropriation. The Bureau of Land Management has interest in agricultural waters only insofar as related to disposal of public lands, and to the requirements for proof of water under the homestead and desert land laws.

In area 1, the situation is generally so critical it is evident that additional water appropriation would be foolhardy. Usually the State will not allow further permits to drill wells. However under any circumstances desert land application can reasonably be rejected on the basis of no proof of the right to a permanent supply of water. In other words the ground reservoir is overappropriated.

The situation in area 2 is similar to area 1. However, some differences exist as to proof of a permanent supply of the ground water. The Bureau should make every effort to determine the withdrawal from and recharge to the reservoir. This is necessary in order that adequate compliance may be made regarding permanency of the water supply. In this instance the Bureau must rely heavily on the State to protect already existing irrigation development from possible future loss of an adequate water supply. The problem of overdevelopment is great, and it cannot be fully resolved by classification action. The several States are parties in interest, and close coordination between the Bureau and the States is necessary.

Hydrologic data of a detailed nature are necessary if orderly development is to proceed in area 3. The Bureau must rely on the States and Federal agencies to furnish hydrologic information. Until adequate data on water are available, it would seem to be in the public interest to encourage development first on land of the highest capability classification.

Areas having no development and only



FALL ROUNDUP. Scenes such as this one on Utah rangelands were viewed by training conference delegates this year.

suspected ground water reservoir require no immediate concern in applying the desert-land laws. However, classification action should be contemplated, and reconnaissance surveys are advantageous pending possible discovery of water. In some instances, special land-use permits may be used to aid water discovery. Ideally, land classification should precede the rush for land following discovery of water, but it seldom does.

FUTURE DEVELOPMENT

The demand for desert lands under the desert-land act has probably reached, or will soon reach, a peak. Even if agricultural prices remain high, it is probable that other economic factors will deter additional large development. The present cost of sinking deep wells, the cost of equipment adequate to lift the water, and the cost of land leveling and irrigation works have risen beyond the means of the average entryman. Even in presently developed areas some farms may become uneconomic owing to increased pumping lifts.

In allowance of desert-land entries, the Bureau must proceed under the provisions of the law. In addition the Bureau's actions must basically be in the public interest. In classifying desert lands for entry, certain basic questions must be answered. Is the soil and topography adequate for crop production? Is the water supply sufficient and permanent? In this instance a permanent water supply is defined as an appropriation that is within the rate of recharge to the ground water reservoir. Has classification attempted to place the limited water supply on the best lands and soils? When these questions are answered in the affirmative the Bureau has contributed to the development of oases in the desert.

DEMAND

(Continued from page 7)

13,000 in 1953), therefore, is grounded on more fundamental developments, such as the rapid growth of cities and towns in the West and Alaska, a general move to the suburbs, the construction of new industrial plants in isolated areas of the West, including atomic energy facilities, and the heightened demand for desert and mountain recreational retreats, following in part from increased leisure time and the lure of "cheap" land.

An insatiable industrial appetite for petroleum, increasing rate of conversion of many types of facilities to natural gas, and the new developments in prospecting and drilling for petroleum deposits, together with the general tenor of the times and the opportunities inherent in the mineral leasing laws, have promoted intense interest in the search for oil in the public lands. Applications for noncompetitive public domain leases in 1953 totaled 15,313 compared to an average of 4,500 during the war years.

The above examples illustrate the factors which create the Bureau's caseload. Internally they have additional influences which add burdens to the day-to-day job. Intensification of demand means intensification of competition between applicants for the same or conflicting uses. Problems become knottier and harder to solve. In addition, work generates work. Issuance of leases results in new requests for approval of assignments, operating agreements, and other transactions. Although Bureau personnel may feel that they are operating on a treadmill, their efforts are an important contribution to the needs of the national economy as reflected in the demand for land.

ROLE

(Continued from page 5)

offer should be acted upon at once and out of turn. If the reasons are cogent and appropriate, they will be accepted and the offer will be acted upon at once. Generally, the most cogent reason is that imminent drilling operations are contemplated.

The public is gradually awakening to the fact that a land office and its personnel is ever ready to assist them in every way possible. Of course, when an extraordinary situation occurs, similar to the Williston Basin rush at the Billings land office, it may take a little longer to accomplish a desired result. In such eventuality, some patience on the part of the public is necessary. On the other hand, however, the public should always keep in mind that in emergency situations they can always present their problem to the land office manager and be assured of such prompt action as may be right and proper.

Training Conference

As OUR PUBLIC LANDS goes to press, plans are being completed for the Fifth Annual Training Conference August 20-September 2. The place selected this year is the summer camp of Utah State Agricultural College near Logan. Edgar B. Carroll, Personnel Officer, is Chairman of the conference.

Featured speakers listed on the tentative program are Dr. L. A. Stoddart, Head, Range Management Dept. of Utah State Agricultural College; Director Edward Woolley; H. Byron Mock, BLM's Regional Administrator in Salt Lake City, Utah.

Discussion leaders are listed as John L. Bishop, Regional Counsel of Region I in Portland; Albert E. Croft, Office of International Cooperation; George Woodhall, Regional Administrative Officer of Region V in Albuquerque; W. R. Bandy, Regional Chief of the Div. of Cadastral Engineering in Region III, Billings; William N. Anderson, Regional Chief, Div. of Lands, Region IV, Salt Lake City; George E. M. Gustafson, Land Economist, Region VII, Anchorage; William A. Vogely, Commodity Industry Economist, Div. of Minerals; Boyd S. Hammond, Range Manager, Region II, San Francisco; and T. G. Taylor, Forester, Region I, Portland.

Field trips with locations to be announced later were included in the plans, and Saturday, August 29, was set as U. S. A. C. Day under the direction of Dr. Lewis M. Turner, Dean, Dr. Stoddart, and others. A visit to the campus, and a review of curriculum and plant facilities of the School of Forest, Range, and Wildlife Management were included in the plans.

WATERSHEDS

(Continued from page 9)

project area. Actual S&M planning and operations will be conducted in so-called community watersheds, which may be either major or minor tributary watersheds within the Sub-Basin. As the name implies, a community watershed is a segment of a river basin having similar physical, economic, and social attributes.

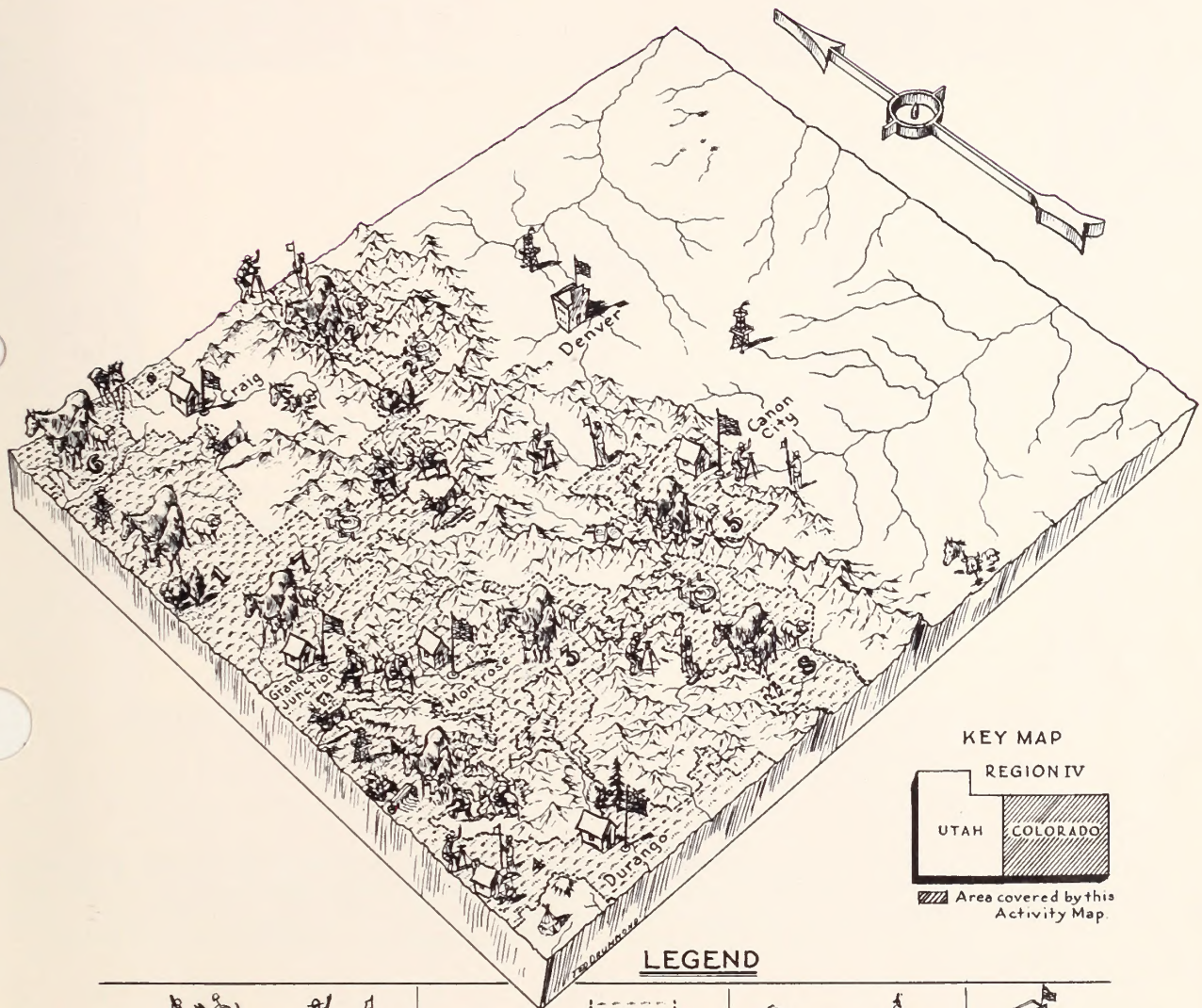
Community watersheds will vary widely in total area and may include interests of several other agencies in addition to BLM. Detailed conservation plans will be prepared for the smaller watersheds before project operations are started. For the larger watersheds, a general conservation plan for the entire area will be developed first followed by detailed plans for individual segments selected on a priority basis. All conservation planning will be carried out in cooperation with the public land users, soil conservation districts, other land managing agencies and state and local organizations having an interest in the watershed. Primary emphasis will be placed on grass roots planning with individual range users and gaining acceptance of composite plans by all affected users. If the watershed is covered by a soil conservation district, acceptance would be made by the board of supervisors. Otherwise a committee of users would approve the plans.

The programming of conservation operations on a watershed basis has many advantages. Of paramount importance is the opportunity for direct application of the tremendous mass of physical data available in the reports of river-basin studies by various agencies. Of particular value are the hydrologic and sedimentation data which express quantitatively the nature of the soil erosion problem and aid in the objective determination of priority of work areas. Detailed information for specific community watersheds may still be deficient and will require the assistance of cooperating agencies to fill the gaps.

Watershed programming also has the advantage of providing for close integration of S&M activities on public lands with the resource development programs of other agencies operating within the same watershed. It is readily susceptible to coordination by Interior Field Committees with other programs of the Department. Once in full operation, only one system of budgeting and reporting will be required, thus avoiding the necessity of preparing separate submissions for Bureau and Field Committee use.

From the standpoint of accomplishing the conservation job on the ground, watershed programming has the advantage of communitywide appeal. The welfare of most western range communities is closely tied to the welfare of the watersheds which produce vitally essential irrigation water. More local support for restoring and protecting public lands should result from the watershed approach to conservation planning.

COLORADO LAND-USE AND ACTIVITY MAP



LEGEND

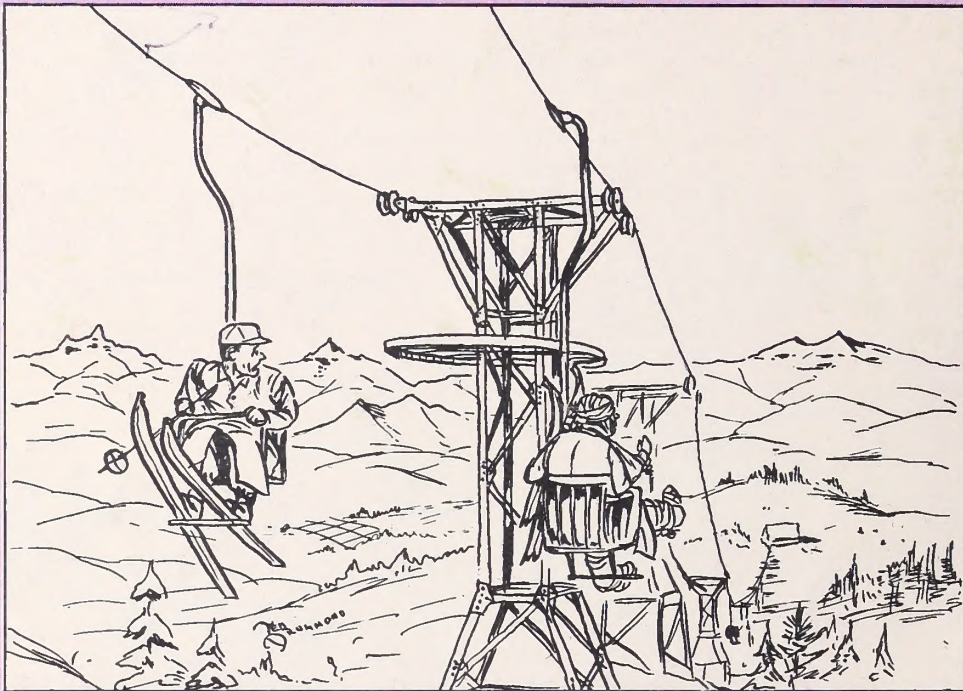
Mineral Claims	Cadastral Surveys	Grazing Districts	Woodland	Land & Survey Office
Small Tracts	Oil & Gas Leases	Range reseeding	Deer	Grazing Office
Materials		Range Improvement	Antelope	

For comments on this map, please see page 10

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IT'S THE LAND LAW



There are various uses that persons may wish to make of public lands which are not covered by applicable laws. In such cases an applicant may file a request for a special-use permit with a land

office. Special uses may include advertising signs, production of movies, erection of a ski lift such as this one, and other uses of public lands which are not covered by or forbidden by specific law.

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